Chapter 1. Introduction

This field guide is an abridged version of a larger book, "Ecological Types of the Upper Gunnison Basin," sometimes called the "desk guide." Everything has been streamlined for use in the field, which means that most diagrams, literature citations, discussions, text descriptions, and technical definitions have been omitted from this field guide. Please refer to the desk guide for more details.

Most of the glossary has been retained, but part of it has been brought into this chapter for general use. Please address comments to:

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Abbreviations

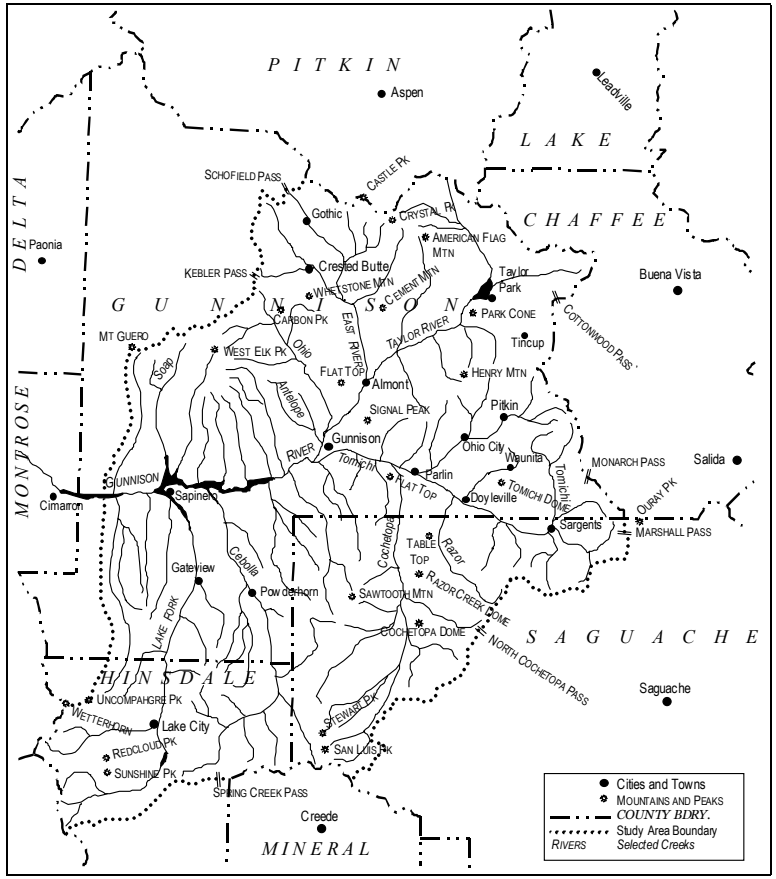
ac	acre(s) = 0.4047 ha
AUM	Animal Unit Month
Avg.	Average
$CaCO_3$	calcium carbonate
Ccv.	characteristic cover
cm	centimeter(s)
c. t.	community type
Cvr.	canopy cover
dbh	diameter at breast height
diam.	Diameter
EIS	Environmental Impact Statement
E.T.	Ecological Type
ft	foot (feet)
ft^2	square feet
ft^3	cubic feet
ha	hectare(s) = 2.4710 ac
in	inch(es) = 2.5400 cm
kg	kilogram(s) = 2.2046 lb
kg/ha/yr	kilogram(s) per hectare per year, the usual International measure of above-ground production = 0.8922 lb/ac/yr
km	kilometer(s) = 0.6214 mi
lb	pound(s) = 0.4536 kg
lb/ac/yr	pound(s) per acre per year, the usual American measure of above-ground production, usually expressed as air-dry weight = 1.1209 kg/ha/yr

m	meter(s) = 3.2808 ft
Max	maximum
mi	mile(s) = 1.6093 km
mm	millimeter(s)
Min	minimum
mod.	moderate(ly)
ns	number of samples (or plots)
ph.	phase(s)
precip.	precipitation
r	radius of aspect circle
S	samples or species (usually number of)
sd	standard deviation
spp.	species (usually plural)
ssp.	subspecies
TLC	Total Live Cover, the sum of cover for all live species
UGB	Upper Gunnison Basin, area of this study (Fig. 1-1)
v.	very
Var.	variety (taxonomic subdivision of species)
Yr	year(s)
%	per cent
>	greater than
<	less than
±	more or less
°F	degree Fahrenheit = (9/5) × C + 32°
°C	degree Celsius = (F – 32°) × (5/9)

Geology Map Units

Symbol	Era	Map Unit
Taf	Tertiary	Ash-flow tuffs
Tbb	Tertiary	Basalt flows and associated tuff, breccia, and conglomerate
Th	Tertiary	Huerfano Formation – Shale, sandstone
Tiql	Tertiary	Intra-ash flow quartz latite lavas
Tmi	Tertiary	Middle Tertiary intrusive rocks
Tos	Tertiary	Oligocene sedimentary rocks – Shale, tuff, limestone, sandstone, conglomerate
Tpl	Tertiary	Pre-ash flow andesitic lavas, breccias, tuffs, and conglomerates
Tw	Tertiary	Wasatch Formation – Claystone, shale, sandstone

Geology Map Units (Continued)		
Symbol	**Era**	**Map Unit**
Kd	Cretaceous	Dakota Sandstone
Kdb	Cretaceous	Dakota Sandstone and Burro Canyon Formation – Sandstone, shale, conglomerate
Km	Cretaceous	Mancos Shale
Kjd	Cretaceous-Jurassic	Dakota Sandstone
KJdj	Cretaceous-Jurassic	Dakota, Burro Cañon, Morrison, and Junction Creek Formations
KJdm	Cretaceous-Jurassic	Dakota and Morrison Formations
Jj	Jurassic	Junction Creek Sandstone
Jm	Jurassic	Morrison Formation – Variegated claystone, mudstone, sandstone, limestone
Jmj	Jurassic	Morrison Formation and Junction Creek Sandstone
Pmb	Pennsylvanian	Minturn and Gothic/Belden Formations – Sandstone, conglomerate, shale, limestone
PPm	Permian-Pennsylvanian	Maroon Formation – Sandstone, siltstone, conglomerate, limestone
MCr	Pre-Pennsylvanian Paleozoic	Limestone, Dolomite, Sandstone
Cam	Cambrian	Igneous rocks of Cambrian age
Xb	Precambrian	Metamorphic rocks – Gneiss, schist, migmatite, marble, quartzite
Xfh	Precambrian	Felsic and hornblendic gneisses
Xg	Precambrian	Granitic rocks of age 1,350-1,480 MY



The Upper Gunnison Basin (UGB) and surrounding areas

Coarse Fragments		
Size (Diameter)	Shape	Term
0.2 – 7.6 cm*	Rounded or Irregular	Gravel
	Thin and Flat	Channer
7.6 - 25 cm	Rounded or Irregular	Cobble
	Thin and Flat	Flag
25 - 60 cm	Any	Stone
> 60 cm	Any	Boulder

*. Sometimes divided into Small Gravel (0.2-1.0 cm) and Large Gravel (1-5 cm)

Ground Cover	
.LITTER	*Litter* and duff, dead plant material on surface
.BARESO	*Bare soil*, otherwise uncovered
.SMGRAV	*Small gravel* ("pebbles"), rock fragments rock <1 cm diameter (Pritchard and others 1982)
.LGGRAV	*Large Gravel*, rock fragments >1 cm and <7.6 cm (3 in) diameter (Pritchard and others 1982)
.COBBLE	*Cobble*, rock fragments >7.6 cm (3 in) and <25.4 cm (10 in) diameter (Pritchard and others 1982)
.STONES	*Stones*, rock fragments >25.4 cm (10 in) diameter (Pritchard and others 1982)
.BEDROC	*Bedrock* or embedded rock fragments, usually the size of stones
.LIVEPL	Bases of vascular plants, usually not more than 3-4% in the UGB
.WATER	Free, open surface water
.LICHEN	Lichen on soil or on moss; lichen on rock counts as rock; lichen on wood counts as wood
.MOSSON	Moss on soil or on lichen; moss on rock counts as rock; moss on wood counts as wood
.COWPIE	Cow droppings
.ELKPEL	Elk droppings
.DEERPE	Deer droppings
.ANTELO	Antelope (pronghorn) droppings
.SAGEGR	Sage grouse droppings

Each ground cover category is measured in percent cover. Most often, litter + bare + gravel + rock = 100% cover.
Both moss and lichen, even if measured separately, count as litter.

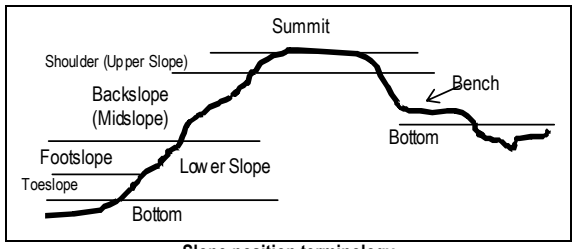
Numbers		
Convention	**Example**	**Meaning**
One Dash	0.1 – 21.5	Minimum - Maximum
Number and parenthesis	12.7 (0 - 22)	Average (Minimum-Maximum)
No parenthesis	456.2	Measured Value(s)
All numbers in parenthesis	(100 - 500)	Estimated Value(s)

Particle Size Classes						
Class	Subclass	Coarse Particles (> 2 mm)*	Clay Particles (<0.002 mm)†	Particles > VFS (> 0.05 mm and < 75 mm)*	Texture of Mineral Fines (< 2 mm)†	Quantity of Fines†
Fragmental	*Fragmental*	> 35%			Any	Too few to fill interstices > 1 mm
Sandy	*Sandy-Skeletal*	> 35%			S or LS (not VFS or LVFS)	Enough to fill interstices > 1 mm
	Sandy	< 35%				
Loamy	*Loamy-Skeletal*	> 35%	< 35%	> 15%	Any except C, SC, SIC	Enough to fill interstices > 1 mm
	Coarse-Loamy	< 35%	< 18%	> 15%	"Clay" not in texture name	
	Fine-Loamy	< 35%	18 - 35%	> 15%	L, SCL, CL, SICL	
	Coarse-Silty	< 35%	< 18%	< 15%	SIL, SI	
	Fine-Silty	< 35%	18 - 35%	< 15%	SIL, SI, SICL	
Clayey	*Clayey-Skeletal*	> 35%	> 35%		C, CL, SC, SIC, SICL	Enough to fill interstices > 1 mm
	Fine	< 35%	35 - 60%		C, CL, SC, SIC, SICL	
	Very Fine	< 35%	> 60%		C	

*. Percentages of the *whole* (mineral) soil. †. Percentages and textures of the *fine-textured* (mineral) fraction (< 2 mm) only.

Seral stages			
Seral Score	Seral Stage	Code*	Code†
85-100%	Potential Natural Community	PN	P
70-85%	Late Seral	LS	
60-70%	Late (Upper) Midseral	LM	L
40-60%	Midseral	MS	M
30-40%	Early (Lower) Midseral	EM	E
15-30%	Early Seral	ES	
0-15%	Very Early Seral	VE	V

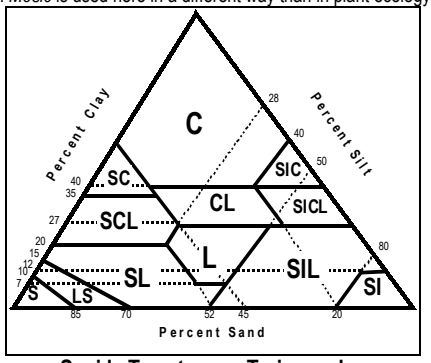
*. Seven-class code usually used. †. Five-class code.



Slope position terminology

Soil temperature regimes			
Soil Temperature at 50 cm depth	**Variation in Soil Temperature**	**Summer Temperature[1]**	**Temperature Regime**
< 0°C	≥ 5°C	Cold	Pergelic
0°C - 8°C	≥ 5°C	Cold	Cryic
	≥ 5°C	Not Cold	Frigid
	≥ 5°C	Not Cold	Isofrigid
8° - 15°C	≥ 5°C	Not Cold	Mesic[2]
	< 5°C	Not Cold	Isomesic[2]
15° - 22°C	< 5°C	Not Cold	Thermic
	< 5°C	Not Cold	Isothermic

1. "Cold" summers average <10°C air temperature.
2. *Mesic* is used here in a different way than in plant ecology.



Soil Texture Triangle

C CLAY	SC Sandy Clay
CL Clay Loam	SCL Sandy Clay Loam
L LOAM	SI SILT
LS Loamy Sand	SIC Silty Clay
S SAND	SICL Silty Clay Loam
	SIL Silt Loam